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| 09/722,774 | 11/27/2000 | David Erb | 777.386US1 | 4894 |
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| MICROSOFT CORPORATION C/O MERCHANT & GOULD, L.L.C. P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903 | | | SHRADER, LAWRENCE J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2124 | |

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/722,774

Applicant(s)

ERB ET AL.

Examiner

Lawrence Shrader

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 3, and 5 - 27 is/are pending in the application.
- 4a) Of the above claim(s) 4, 28 - 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 3, and 5 - 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed/RCE on 11/17/2004.
2. Claims 1 – 3, and 5 – 27 remain pending. Claims 28 – 33 have been cancelled at the request of the Applicant.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 9, 10, 18, 19, and 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification does not adequately define what a “type of probe” means in the last new limitation of the referenced claims reading: “**compress(ing) the difference information such that the type of probe is independent of the type of data to be compressed (type of profiling data).**” The specification refers to the well-known use of a probe to collect information of interest (data) to the developer at certain points in a computer program under test (page 1 and page 8), but makes no reference to a “type of probe.” This amounts to new matter, and does not appear to add any useful information to the claim limitation.

5. Claims 1, 9, 10, 18, 19, and 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It is not clear what relationship, if any, the “type of probe” has with respect to the type of data to be compressed or the type of profiling data as presented in the last limitation, which reads: **“compress(ing) the difference information such that the type of probe is independent of the type of data to be compressed (type of profiling data).”** When a probe collects information into a buffer, the information then appears to be processed (in this case compressed) independent of the probe. It is not clear from the specification or the claims how the probe would have any “type” relationship to the data; or how the “type of probe” might in some way have an implied dependent relationship to the type of data being compressed. The specification seems to indicate that the final step comprises the difference information being compressed as a function of only the type of data (see page 11, second full paragraph). The reference to the “type of probe” is, therefore, confusing.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

7. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The first limitation reads, “collecting the data to be compressed using at least one probe,” but it is not clear from the claim where the data comes from and consequently it is unclear what is being probed to obtain the data. In a broad interpretation, the probe may obtain data, for example, from a transducer to be input to a program, monitoring data on a bus, or monitoring a section of code for profiling information in a function. The other independent claims more clearly indicate which data is being collected; for example, claim 9 refers to profiling data, and claims 10, 18, 19, and 27 refer to collection of profiling data during execution of an application.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 10, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Andrews et al., U.S. Patent 6,108,027 (hereinafter referred to as Andrews).

In regard to claim 1, Andrews discloses a method of compressing data:

“collecting the data to be compressed using at least one probe”

Andrews must inherently have an information collection mechanism to collect data for the difference computation.

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“determining difference information as a function of the data to be compressed;”

Andrews discloses that difference information is determined as a function of the compressed video information (column 1, line 53 – 62).

“responding to the difference information satisfying a size constraint by encoding the difference information with reference to a set of commonly occurring difference values for a type of data to be compressed.”

The Andrews invention encodes the difference information with reference to a commonly occurring difference values for the image data (column 1, lines 56 – 62).

“accumulating the difference information in a buffer;”

See Figure 4, ref. no. 314.

“compressing the difference information such that the type of probe is independent of the type of data to be compressed.”

See the 35 USC § 112, first paragraph above.

In regard to claim 10:

Claim 10 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 1 (a method).

In regard to claim 19:

Claim 19 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 1 (a method).

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Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Perkins et al., U.S. Patent 5,828,414 (hereinafter referred to as Perkins).

In regard to claim 2, incorporating the rejection of claim 1 above:

“...before determining the difference information, store an initial counter value for the data to be compressed.”

Andrews does not teach the storing of a counter value before determining difference information. However, Perkins does teach storing a counter value before completing a difference computation (column 6, lines 59 – 67). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the storage of counter information before calculating the difference information in jitter removal as taught by Perkins, because storing counter information before the difference calculation allows the control information to be decoded and implemented in the processing of a signal without other reference information.

In regard to claim 11, incorporating the rejection of claim 10 above:

Claim 11 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 2 (a method).

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In regard to claim 20, incorporating the rejection of claim 19 above:

Claim 20 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 2 (a method).

12. Claims 3, 12, 13, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Masters, U.S. Patent 5,212,772.

In regard to claim 3, incorporating the rejection of claim 1 above:

“storing the contents of the buffer in a profiling data file in response to the buffer accumulating to a predetermined amount of difference information.”

Andrews does not teach storing difference information in a file when a predetermined amount of data is received. However, Masters does teach accumulating difference information in a buffer, and storing the contents in a file upon receiving a predetermined amount of information (column 4, lines 35 – 66). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with accumulating and storing of difference information in a buffer as taught by Masters because of the efficiency gained by buffering data and then writing only when the buffer is full rather than making write calls whenever any data is available.

In regard to claim 12, incorporating the rejection of claim 10 above:

Claim 12 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 3 (a method).

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In regard to claim 13, incorporating the rejection of claim 12:

Claim 13 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 3 (a method).

In regard to claim 21, incorporating the rejection of claim 19 above:

Claim 21 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 3 (a method).

In regard to claim 22, incorporating the rejection of claim 21:

Claim 22 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 3 (a method).

13. Claims 5, 14, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Edwards et al., U.S. Patent 6,615,370 (hereinafter referred to as Edwards).

In regard to claim 5, incorporating the rejection of claim 1 above:

"...the difference information is timestamp difference information...with reference to a set of commonly occurring timestamp difference values."

Andrews does not encode difference information based on a timestamp. However, Edwards teaches the comparison of timestamp information with reference to a predetermined time (column 8, lines 34 – 49) and encodes the timestamp information for trace messages. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by

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Andrews with the use of timestamp information as taught by Edwards because the timestamp information could be encoded (compressed) in a trace message as taught by Edwards.

In regard to claim 14, incorporating the rejection of claim 10 above:

Claim 14 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 5 (a method).

In regard to claim 23, incorporating the rejection of claim 19 above:

Claim 23 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 5 (a method).

14. Claims 6, 15, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Faillace, U.S. Patent Re. 31,903 and further in view of Edwards et al., U.S. Patent 6,615,370.

In regard to claim 6, incorporating the rejection of claim 1 above:

"Encoding the difference information...with reference to a set of commonly occurring stack difference values;"

Andrews does not teach use of a stack for difference values. However, Faillace teaches a stack for storing the absolute value of difference information (column 10, line 56 to column 11, line 8), but does not teach encoding the difference information. Edwards teaches encoding of timestamp difference information (column 8, lines 34 – 49) for trace messages. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of difference information in a stack as taught by Faillace modified by the encoding of difference

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information as taught by Edwards because the combination provides a means to store difference information to compute errors as taught by Faillace (column 11, lines 1 and 2) and encode it for messaging as taught by Edwards (column 8, lines 48 – 49) .

“Reconstructing a sign of the stack difference...”

Andrews does not teach the reconstruction of a sign of stack differences. However, Faillace teaches a stack for storing the absolute value of difference information and means to reconstruct the sign (column 11, lines 3 – 8). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of stacks and the reconstruction of a sign as taught by Faillace because the difference information of control data in the Andrews invention would then have a means to recover any necessary signed information relevant to the compressed data.

In regard to claim 15, incorporating the rejection of claim 10 above:

Claim 15 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 6 (a method).

In regard to claim 24, incorporating the rejection of claim 19 above:

Claim 24 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 6 (a method).

15. Claims 7, 16, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Kovalev, U.S. Patent 6,339,616.

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In regard to claim 7:

“...dividing a quantity represented by the difference information by four before encoding...”

Andrews teaches the use a compression function based on difference information (column 1, line 50 – column 2, line 6), but does not disclose division of difference information by a positive integer before encoding. However, Kovalev teaches division of a difference value by a positive integer before being encoded (column 12, lines 24 – 42). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with division of the difference information by an integer as taught by Kovalev because the division provides proper boundaries for the difference as taught by Kovalev at column 12, lines 32 – 37.

In regard to claim 16:

Claim 16 (a computer readable medium) is allowed for the corresponding reasons put forth in the allowance of claim 7 (a method).

In regard to claim 25:

Claim 25 (a computer arrangement) is allowed for the corresponding reasons put forth in the allowance of claim 7 (a method).

16. Claims 8, 17, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Faillace, U.S. Patent Re. 31,903, further in view of Edwards et al., U.S. Patent 6,615,370, and further in view of Maxwell, U.S. Patent 6,106,571.

In regard to claim 8, incorporating the rejection of claim 1:

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“...if the type of data to be compressed is stack data collected upon entry to and exit from a function, recording a single difference value for the stack data.”

Andrews teaches the implementation of a compression function based on difference information, but neither Andrews nor Faillace nor Edwards teaches the use of a stack for difference values collected from entry from and exit from a function. However, Maxwell teaches difference information collected from entry from and exit from a function (column 3, lines 53 – 67). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of difference information in a stack as taught by Faillace modified by the encoding of difference information as taught by Edwards, further modified by the collection of difference information upon entry to and exit from a function enabling the invention of Andrews to process time stamp data for the purpose of collecting information about the time spent calculating a function as taught by Maxwell (column 3, lines 57 – 61) and evaluating the efficiency of the function.

In regard to claim 17, incorporating the rejection of claim 10 above:

Claim 17 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 8 (a method).

In regard to claim 26, incorporating the rejection of claim 19 above:

Claim 26 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 8 (a method).

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17. Claims 9, 18, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maxwell, U.S. Patent 6,106,571 in view of Faillace, U.S. Patent Re. 31,903, further in view of Bodnar et al., U.S. Patent 6,295,541, and further in view of Andrews et al., U.S. Patent 6,108,027.

In regard to claim 9, Maxwell discloses a means to process profiling data:

“collecting the profiling data using at least one probe;”

Maxwell collects time stamp information to be used as a performance statistic the profiling report (column 3, lines 53 – 67).

“determining the difference information as a function of the type of profiling data;”

Maxwell determines difference information based on profiling data (time stamp information) to calculate execution time (column 3, lines 57 – 61).

“if the profiling data is time stamp data...;” Maxwell does not teach encoding the difference information. However, Andrews teaches the use of timestamp information in the compression function based on difference information (column 1, line 50 – column 2, line 6), and Bodnar teaches the comparison of timestamp information with reference to a range (commonly occurring) of timestamp information (column 28, lines 46 – 67). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews modified by Maxwell to enable the processing of time stamp difference information, and further modified by Bodnar to reference the time stamp information to commonly occurring time stamp values, because the timestamp difference information could be used for synchronization or performance monitoring functions in the system.

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“if the profiling data is stack data;

“encoding the difference information as an unsigned quantity...”

Maxwell does not teach the use of a stack or encoding the difference information.

However, Andrews teaches the use a compression function based on difference information (column 1, line 50 – column 2, line 6), and Faillace teaches a stack for storing the absolute value of difference information (column 10, line 56 to column 11, line 8). Storing data in a stack is well known in the art for its last in first out capability, and could be useful in the synchronization of encoding/decoding functions. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of difference information as taught by Maxwell, and further modified by Faillace implementing difference information in a stack, because the last in first out feature of a stack allows the difference data to be correlated with other corresponding information in the system.

“reconstructing the sign of the stack differences...”

Maxwell does not teach the reconstruction of a sign of stack differences. However, Faillace implements a stack for storing the absolute value of difference information and means to reconstruct the sign (column 11, lines 3 – 8). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine difference information of the profiling data as taught by Maxwell with the use of stacks and the reconstruction of a sign as taught by Faillace because the difference information of profile data could then be matched with any necessary sign information relevant to the data.

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“accumulating the difference information in a buffer;”

Maxwell does not teach the use of a stack or encoding the difference information.

However, Andrews teaches the use a compression function based on difference information (column 1, line 50 – column 2, line 6), and storage in a buffer for transmission (e.g., Figure 1, ref. no. 314). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function and buffering based on difference information as taught by Andrews with the use of difference information as taught by Maxwell, because the buffering would be needed to hold information and regulate release of the information for processing.

“compressing the difference information such that the type of probe is independent of the type of data to be compressed.”

See the 35 USC § 112, first paragraph above.

In regard to claim 18, incorporating the rejection of claim 10 above:

Claim 18 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 9 (a method).

In regard to claim 27, incorporating the rejection of claim 19 above:

Claim 27 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 9 (a method).

A handwritten signature in black ink, appearing to read 'TODD INGBERG', with a long, sweeping horizontal line extending to the right.

TODD INGBERG
PRIMARILY EXAMINER

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Response to Arguments

Applicant's arguments filed on 11/17/2004 have been fully considered but they are not persuasive in view of the 35 U.S.C. 112 problems address above.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Shrader whose telephone number is (703) 305-8046. The examiner can normally be reached on M-F 08:00-16:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Lawrence Shrader
Examiner
Art Unit 2124

December 2, 2004